

REMARKS

The non-final Office Action issued July 17, 2002 has been reviewed and the comments of the U.S. Patent and Trademark Office have been considered. Claims 1, 5, 10, and 13-16 have been amended. Claims 21-23 have been added. No new matter has been added. Accordingly, Applicant requests reconsideration of the pending claims 1-23.

Claims 13-15 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to provide antecedent basis for the phrases "the dry lubricant" and "the dry powder." Claims 10 and 13-15 have been amended to provide antecedent basis for the feature of a dry powder lubricant. Support for this amendment to claims 10 and 13-15 is provided in the originally filed specification at, for example, page 7 and originally filed claim 16. Accordingly, this rejection has been overcome and should be withdrawn.

Claims 16, 19, and 20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,230,157 to Larsen *et al* ("Larsen"). Claims 1 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Larsen. Claims 5 and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,302,450 to Dole *et al* ("Dole '450") in view of U.S. Patent No. 5,172,918 to Percht *et al* ("Percht"). Claims 7-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dole '450 in view of Percht as applied to claim 5 above, and further in view of U.S. Patent No. 5,070,597 to Holt *et al* ("Holt"). Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Dole '450 in view of Percht and Holt. Claims 11, 13-15 re rejected under 35 U.S.C. 103(a) as being unpatentable over Dole '450 in view of Percht and Holt as applied to claim 10 above, and further in view of U.S. Patent No.

5,540,465 to Sisk. Claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Dole '450 in view of Percht, Holt, Sisk as applied to claim 11 above, and further in view of U.S. Patent No. 5,642,907 to Dole '907. Claims 2-3 and 17-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Larsen in view of Holt.

Insofar as the rejections are applicable to amended claims 1, 5, 10, and 16, Applicant respectfully traverses these rejections because Larsen, Dole '450, Percht, Holt, Dole '907, or Sisk fails to teach or suggest the claimed invention as a whole as recited in claims 1, 5, 10, and 16.

Each of the independent claims 1, 5, 10, and 16 has been amended to more particularly point out and distinctly claim applicant's invention. In particular, each of the independent claims has been amended to recite that the dry powder lubricant is located on a surface of the inner circumference of the elastomeric gasket that engages a pipe. The dry powder lubricant is provided on the gasket to prevent scraping and cutting of the gasket by the pipe. *See*, the originally filed specification at, for example, paragraph 0021, line 7. Applicant has discovered that the claimed dry powder lubricant provides the necessary protection of a gasket that were previously used with a grease or oil based lubricant—i.e., “wet” lubricant—without the believed difficulties such as a messy product or time-consuming assembly associated with the wet lubricant. Applicant has also discovered that the dry powder lubricant cannot be significantly removed by rubbing or handling, does not stick or forms a tack, and does not attract dust, dirt, or other contaminants prior to installation. The use of a dry powder lubricant allows the gasket to be prelubricated and ready for installation by an end user without creating a mess or other negative aspects of a wet lubricant.

For example, one of the preferred embodiments of applicant's invention, as shown in Fig. 3, a gasket is provided with a pair of flange portions 33, 34 with inner faces which form a seal with pipe ends 15a, 14a, respectively. *See*, the originally filed specification at, for example, paragraph 0019, lines 15-17. These inner faces provide surfaces on the inner circumference of the gasket, which are exposed to and directly contact the ends of the pipes. The dry powder lubricant is provided on the inner faces to protect the sealing integrity of the surface that forms a seal with the pipe.

Applicant submits that none of the prior art of record teach or suggest the claimed invention as a whole. That is, none of the prior art teach or suggest: (1) the use of a dry powder lubricant on a surface of the inner circumference of an elastomeric gasket (i.e., a flange) which forms a seal with a pipe, and (2) a dry powder lubricant can be employed on the surface of the inner circumference of the gasket (i.e., the flange) to prevent scraping or cutting of the inner surface while the gasket is being installed on a pipe so that the inner surface forms a seal on the pipe.

Turning to the rejection of the claims, Larsen, in sharp contrast to the claimed invention as a whole, fails to teach or suggest placing dry powder lubricant on an inner circumference of a gasket that forms a seal, and fails to teach or suggest providing the dry powder lubricant on a member of the gasket that is being deflected by a pipe as the pipe is installed such that the sealing integrity of the member is protected. In particular, Larsen provides for a pipe end portion 1 with a circumferential groove 2 on which a sealing ring 3 is constrained within the groove 2 (col. 5: lines 26-48). The sealing ring 3 of Larsen has circumferential lip portions 6 and 7. The lip

portion 7 projects toward a center of the pipe such that the lip portion 7 may be considered to be a single flange. Lubricant 9 or 9', which can be a wet or dry lubricant, is provided to facilitate movement of the stiffening body 5 to the lip portion 6 and the lip portion 6 to the groove 2 as the sealing ring 3 is compressed in the groove 2. Larsen specifically requires that the lubricant be placed in two places: (a) between the lip portion 6 and the stiffening body 5 (i.e., lubricant 9'), and (b) between the lip portion 6 and the groove 2 (i.e., lubricant 9), as shown in Fig. 1 of Larsen (col. 6: lines 7-21). Larsen, however, does not teach or suggest placing any lubricant anywhere on the lip portion 7 (i.e., a flange), which forms a seal with the pipe 1a. Nor does Larsen teach or suggest providing dry powder lubricant to prevent damage (e.g., cutting or scraping) to a deflecting member (i.e. lip portion 7) of a sealing ring 3 as one pipe is inserted into another pipe. Accordingly, claim 16 is patentable over Larsen.

Notwithstanding the deficiencies in Larsen, the Office Action alleges that it would have been obvious as a matter of design choice to modify the sealing ring 3 of Larsen to duplicate the lip portion 7 so as to provide for two lip portions 7 (i.e., two flanges) in an attempt to reach the claimed invention as a whole as recited in claim 1. However, a mere duplication of the lip portion 7 of Larsen would provide for two lip portions oriented in the same direction that could interfere with a sealing function of the original lip portion 7 when pipe 1a is being inserted into pipe 1 as described in Larsen at column 5, lines 49-65. Moreover, nothing in Larsen teaches or suggests providing for two lip portions oriented in opposite directions. Therefore, even if a duplicate lip portion could be provided in Larsen such that the duplicate lip portion is oriented in an opposite direction from the original lip portion 7, such modification to Larsen could prevent

pipe 1a from being inserted into pipe 1 because the second lip could engage an end of the pipe 1a and prevent axial movement of the pipe 1a, and could also prevent a seal from being formed between these two pipes, thereby rendering Larsen unsatisfactory for its intended purpose. And as noted at MPEP §2143.01, “[i]f the proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” Accordingly, claim 1 is patentable over Larson.

Furthermore, as discussed previously, Larsen does not teach or suggest placing any lubricant anywhere on the lip portion 7 (i.e., a flange), which forms a seal with the pipe 1a. Applicant believes that only oil, grease or wet lubricant, as set forth in the originally filed specification at paragraph 0021, has previously been used to prevent damage to a gasket contact surface as a pipe is inserted into the gasket. Thus, Larsen fails to teach or suggest providing any lubricant, much less dry powder lubricant on a lip portion 7 of a sealing ring to prevent damage (e.g., cutting or scraping) as one pipe is inserted into another pipe in Larsen. And a modification of Larsen to provide dry powder lubricant on any surface of the lip portion 7 in an attempt to reach the claimed invention as a whole, as recited in claims 1, 5, and 16 must be taught or suggested, otherwise the proposed modification is merely an improper picking and choosing of features in Larsen without an adequate motivation or suggestion. Accordingly, claims 1, 5, and 16 are patentable because Larsen fails to teach or suggest features of the claimed invention as a whole.

Despite the deficiencies in Larsen, the Office Action relies on the teachings of Holt to render obvious the invention recited in claims 2, 3, 17 and 18. Holt relies on a double-walled

annular member 1 to provide a covering over an exposed cable or pipe, and fails to teach or suggest a gasket that has dry lubricant disposed on at least one flange of the gasket. In particular, Holt states at column 24, lines 12-17, that the tubular article 1 has an outer wall 2 and inner wall 3 that are joined “[t]o form a continuous, closed double-walled tubular structure” with a filler material 4 contained within the outer wall 2 and inner wall 3. Applicant respectfully asserts that because Holt teaches a continuous double-walled structure surrounding an outer structure, Holt teaches away from the seal ring 3 of Larsen which has a discontinuous walled structure that is surrounded by an outer structure (i.e., the pipe 1). And as noted in MPEP 2145, “[I]t is *improper to combine references where the references teach away from their combination.*” Accordingly, dependent claims 2, 3, 17, and 18 are patentable.

Furthermore, applicant respectfully asserts that even if Holt could be combined with Larsen, Holt fails to cure the deficiencies of Larsen such that all claimed features, including the flange(s) of the gasket, are not met by the proposed combination of Larsen and Holt. As noted in MPEP §2143.03, “[a]ll the claim limitations must be taught or suggested by the prior art” in order to establish a *prima facie* case of obviousness. And as further noted in this section of the MPEP, “[I]f an independent claim is nonobvious under 35 U.S.C. 103, then any claims depending therefrom is nonobvious.” Accordingly, dependent claims 2, 3, 17, and 18 are patentable over Larsen or Holt, singularly or in combination thereof.

With regard to the rejection of claims 5 and 6 over Dole ‘450 in view of Percht, the Office Action alleges that it would have been obvious to apply the teachings of Percht in combination with Dole ‘450 in an attempt to reach the claimed invention as a whole. However,

the Office Action's reliance on Percht to teach or suggest the application of dry powder lubricant on a metal ring seal in an attempt to reach the claimed invention as a whole, is believed to be an inappropriate reading of Percht.

First, Percht relies on multi-piece non-elastomeric rings 60, 70, and 76 instead of a one-piece elastomeric seal. The secondary seal rings 60, 70, and 76, are formed from a non-elastomeric material (e.g., high temperature carbon composites) so that the rings in Percht can withstand high temperature turbojet combustion. At most, if one of ordinary skill in the art were to modify Dole '450 as taught by Percht, one would use dry lubricant on multi-piece non-elastomeric or carbon composite rings for the coupling of Dole '450. As such, the proposed combination would not achieve the claimed invention as a whole because each of the independent claims recites a "one-piece elastomeric member." And even if the proposed combination could be made by Dole '450 and Percht, a modification of Dole '450 to provide for a one-piece elastomeric member with dry lubricant disposed at specific locations on the one-piece elastomeric member must be taught or suggested, otherwise the proposed modification is merely an improper picking and choosing of elements from different references without an adequate motivation or suggestion. Accordingly, claim 5 is patentable over the proposed combination of Dole '450 and Percht, singularly or in combination thereof, for at least this reason.

Second, Percht states at column 4, lines 25-29, that a dry lubricant is coated onto all of the surfaces of the rings 60, 70, 76 "[f]or sealing between each of the rings and for sealing between the ring surfaces ..." That is to say, Percht relies on a dry lubricant to form a seal

between multi-piece carbon composite rings rather than a flexible one-piece elastomeric gasket that forms a seal, as recited in claim 5. Therefore, the proposed modification of Dole '450 based on the teachings of Percht would change the principle of operation of Dole '450 from a flexible elastomeric seal with greasy lubricant to a rigid non-elastomeric ring with the dry lubricant as the sealing agent. And as noted in MPEP §2143.01, "*[I]f the proposed modification or combination of prior art would change the principle operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious.*"

Accordingly, claim 5 is patentable over Dole '450 in view of Percht, singularly or in combination thereof.

Notwithstanding the deficiencies in either Dole '450 or Percht, the Office Action relies on the teachings of Holt to render obvious the invention recited in dependent claims 7-9 and independent claim 10. The Office Action apparently recognized that Percht specifically requires molybdenum disulfide in powder form (col. 4: lines 34-33) and fails to teach or suggest cornstarch powder as recited in claims 7-10. In an attempt to cure the deficiencies in the proposed combination of Dole '450 and Percht, the Office Action relies upon the use of cornstarch powder in Holt to lubricate an expandable double-walled tube as the double-walled tube is rotated and expanded over a tubular apparatus (e.g., an electrical cable). However, a modification of either Dole '450 or Percht to provide for cornstarch powder in either a coupling as recited in claims 7-9 or a ferrous pipe system, as recited in claim 10, must be taught or suggested, otherwise the proposed modification is merely an improper picking and choosing of

elements from different references without an adequate motivation or suggestion. Accordingly, claims 7-10 are patentable over the proposed combination of Dole '450, Percht and Holt.

Despite the deficiencies in the proposed combination of Dole '450, Percht and Holt, the Office Action proposes to rely upon the teaching of Sisk and Dole '907 in an attempt to render obvious the ferrous piping system of claims 11-15. Applicant respectfully asserts that Sisk, alone or in combination with Dole '907, fails to cure the deficiencies of the proposed combination of Dole '450, Percht and Holt such that all claimed features are not met by the proposed combination of Dole '450, Percht, Holt, Sisk and Dole '907. Accordingly, dependent claims 11-15 are patentable over Dole '450, Percht, Holt, Sisk, or Dole '907, singularly or in combination thereof.

New claims 21-23 have been added to more particularly and distinctly claim the applicant's invention. Each of the claims 21-23 recite the feature of a pair of flanges of the gasket and each of the claims depend from a respective one of allowable claims 5, 10, and 16. Support for claims 21-23 is provided in the originally filed application at, for example, paragraph 0021.

Claims 6, and 19-23 depend ultimately from a respective one of allowable claims 5, 10, and 16, are therefore also allowable for at least this reason as well as for reciting additional features.

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration and reexamination of this application and allowance of the pending claims.


Applicant respectfully invites the Examiner to contact the undersigned at (609) 919-6644 if there are any outstanding issues that can be resolved via a telephone conference.

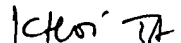
EXCEPT for issue fees payable under 37 C.F.R. §1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. §1.136(a)(3).

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

New claims 21-23 have been added.

Claims 1, 5, 10, and 13-15 have been amended:

1. (Amended) A lubricated ferrous pipe coupling gasket comprising:

a generally tubular, one-piece, elastomeric member with first and second axial open ends, the member being formed by a circumferential wall and at least a pair of circumferential flanges, each flange extending at least generally radially inwardly at a separate one of the first and second axial open ends of the member, the circumferential wall and the pair of circumferential flanges forming at least one circumferential channel on an inner circumferential side of the member; and a coating of dry powder lubricant on at least the inner circumferential side of the pair of flanges of the member.

5. (Amended) A ferrous pipe coupling comprising:

a ferrous collar having an outer, axially extending, axially split circumferential wall with at least one pair of adjoining circumferential ends at the split;

at least one fastener releasably securing together the at least one pair of adjoining circumferential ends of the collar;

a gasket in the form of a generally tubular, one-piece elastomeric member positioned in the collar and having an exposed inner circumferential side exposed in the collar, the inner circumferential side having at least one flange that forms a seal with a pipe; and

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a coating of dry powder lubricant on at least the exposed, inner circumferential side of the elastomeric member.

10. (Amended) A ferrous pipe system comprising:

a plurality of ferrous piping components; and

at least one ferrous pipe coupling mechanically and fluidly joining together ends of a pair of the piping components at a joint;

the ferrous pipe coupling including a ferrous collar having an outer, axially extending and axially split, circumferential wall and at least one pair of adjoining circumferential ends at the split;

the ferrous pipe coupling further including a gasket in the form of a generally tubular, one-piece elastomeric member having an inner circumferential side, the inner circumferential side including at least one flange sealingly mounted on the ends of the pair of piping components and surrounded by the collar;

the ferrous pipe coupling further including a coating of ~~cornstarch powder~~ dry powder lubricant at least between the at least one flange of the inner circumferential side of the gasket and the ends of the pair of piping components; and

the ferrous pipe coupling further including at least one fastener releasably securing together a pair of adjoining, circumferential ends of the collar so as to compress the gasket and the collar on the ends of the pair of piping components.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

13. (Amended) The coupling of claim 11 wherein the dry powder lubricant comprises an organic starch powder.

14. (Amended) The coupling of claim 11 wherein the dry powder lubricant consists essentially of organic starch powder.

15. (Amended) The coupling of claim 11 wherein the dry powder lubricant contains as a primary component, one of cornstarch, rice starch, potato starch, talc and magnesium silicate hydroxide.

16. (Amended) In a ferrous pipe coupling including a generally tubular, one-piece, elastomeric gasket having at least one flange, a ferrous collar surrounding the gasket, the collar including at least one axial split defining a pair of adjoining circumferential ends, and a fastener releasably securing together the adjoining circumferential ends of the collar, the improvement including a coating of dry powder lubricant on at least an inner circumferential side of the at least one flange of the gasket that forms a seal with a ferrous pipe.
